

## Claims

1. A rare earth garnet sintered compact, annealed in a pressurized oxygen-containing atmosphere after hot isostatic pressing (HIP,) having:
  - an average crystallite diameter ranging from 0.9 to 9  $\mu\text{m}$ ;
  - a light loss coefficient of 0.002 or smaller  $\text{cm}^{-1}$ ; and
  - a transmitting wave front distortion of 0.05 or smaller  $\lambda \text{ cm}^{-1}$ .
2. A method for manufacturing a rare earth garnet sintered compact comprising:
  - a step for presintering a molded compact of a rare earth garnet;
  - a step for pressing the obtained presintered compact with an hot isostatic pressing (HIP) into HIP sintered compact; and
  - a step for annealing the obtained HIP sintered compact in the oxygen-containing atmosphere at a 4.5 or higher MPa pressure into a sintered compact having an average crystallite diameter ranging from 0.9 to 9  $\mu\text{m}$ , a light loss coefficient of 0.002 or smaller  $\text{cm}^{-1}$ , and a transmitting wave front distortion of 0.05 or smaller  $\lambda \text{ cm}^{-1}$ .
3. A method for manufacturing the rare earth garnet sintered compact according to claim 2 wherein:
  - in annealing, an oxygen partial pressure of the oxygen-containing atmosphere is 900 or higher KPa and an annealing temperature is an HIP temperature or lower.
4. A method for manufacturing the rare earth garnet sintered compact according to claim 3 wherein:
  - the annealing temperature is 1100 to 1600 deg C and a full pressure of the oxygen-containing atmosphere is 4.5 or higher MPa in annealing.